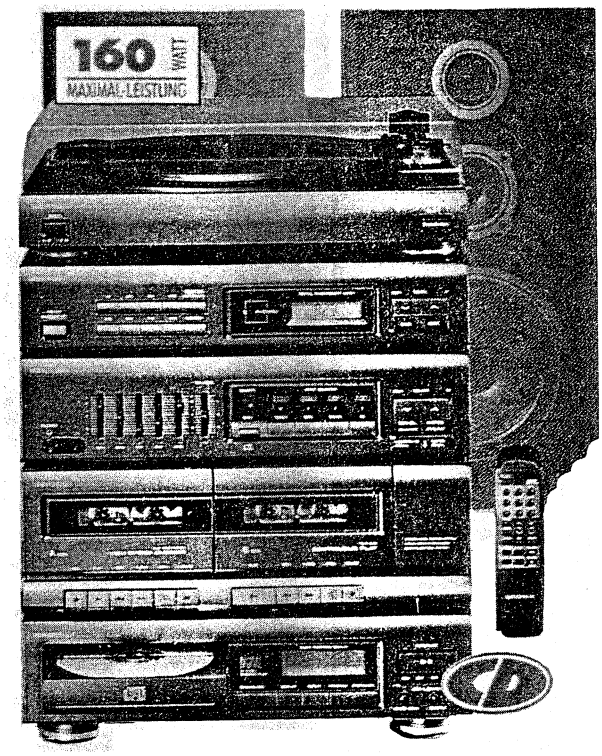
Quelle Technischer Kundendienst 035.116 3



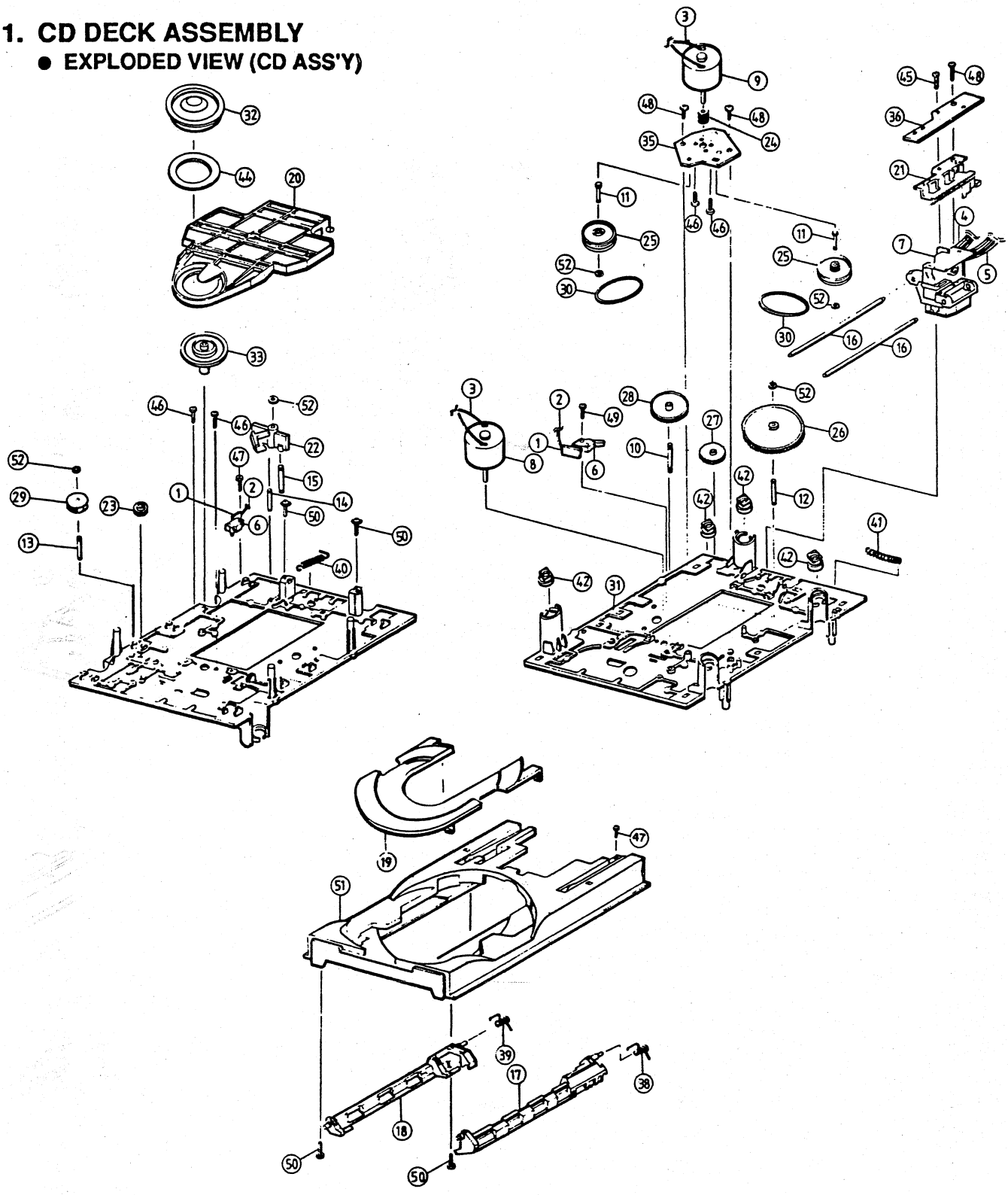
BESTELL-NR.	0351163
GERAETEBEZEICHNUNG	UNIV.-POWER-PACK
WARENGATTUNG	652
AUSFUEHRUNGS-NR.	001
GERAETEBESCHREIBUNG	
PRIVILEG	VTCF 4615
LIEFERANTEN-NR.	205476
PREIS	699.00
KATALOG	914
GARANTIEZEIT	6
KD-SEKTOR	R
HEIM/BRINGE	WERKSTATT
BETREUUNG	EIGEN
KOSTENTRAEGER	EIGEN
REPARATURFAEHIG	JA

Großversandhaus Quelle, Gustav Schickedanz KG. Nachdruck nicht gestattet H/W 91/92
Kundendienstzentralleitung Ulmenstraße 52 **Nürnberg** Änderungen vorbehalten
Bei allen Reparaturen sind die gültigen Sicherheitsvorschriften zu beachten!

■ EXPLODED VIEW

1. CD DECK ASSEMBLY

● EXPLODED VIEW (CD ASS'Y)



3. CD

1) MEASURING INSTRUMENT

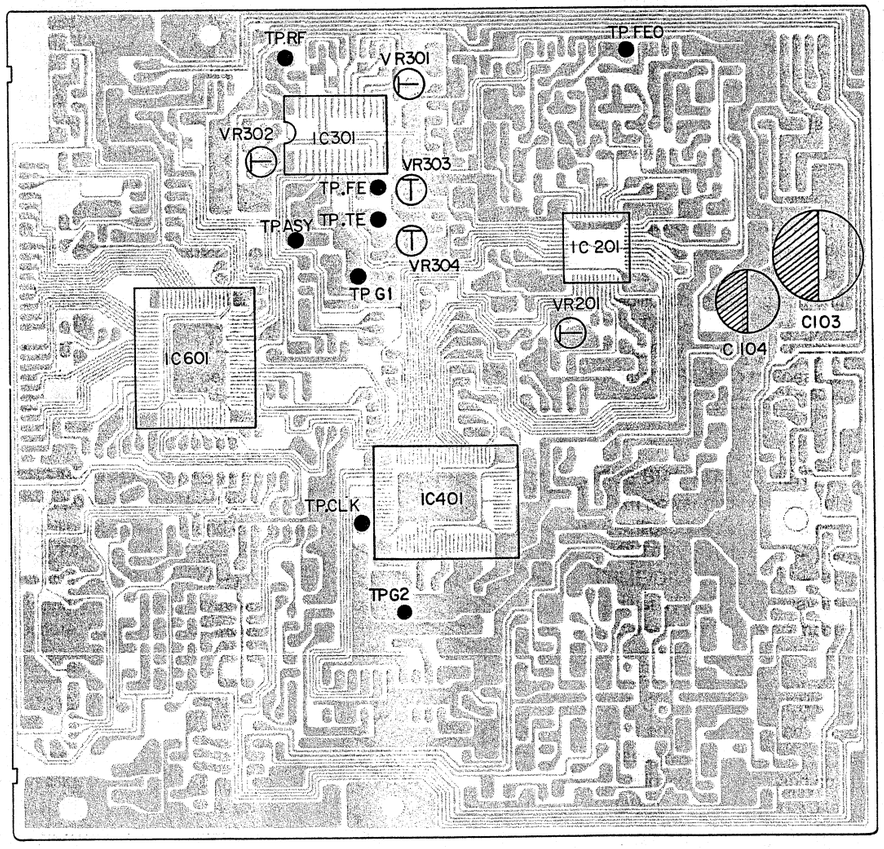
1) Oscilloscope (100MHz≧Frequency)
2) Probe (10 : 1)
3) Frequency counter

2) IMPORTANTS

1) Semi-Volume position can be a little different according to unit.
2) Be sure not to use a warped or dirt-build up disc in adjusting.
3) When adjusting Semi-Volume, use plastic screw driver.

3) LOCATION OF ADJUSTMENT POINTS (PARTS SIDE)

CD PCB

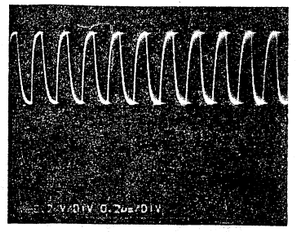


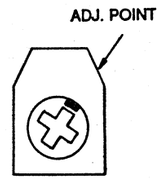
VR201	:	CLV adjustment	TP.FE	:	To oscilloscope signal port
VR301	:	E-F balance adjustment	TP.TE	:	To oscilloscope signal port
VR303	:	Focus gain adjustment	TP. CLK	:	To oscilloscope signal port
VR302	:	Focus bias adjustment	TP.G1	:	To oscilloscope GND port
VR304	:	Tracking gain adjustment	TP.G2	:	To oscilloscope GND port

4) ADJUSTMENT PROCEDURE

(1) CLV ADJUSTMENT
① Turn power on and load a disc.
② Frequency counter connection
(+) terminal ; TP. CLK
(–) terminal ; TP. G2
③ Connect TP.ASY to TP. G1
④ Adjust VR201 so the frequency counter reads 4.38 ~ 4.40MHz. (Adjust in stop mode)
⑤ Disconnect TR. ASY from TP.G1

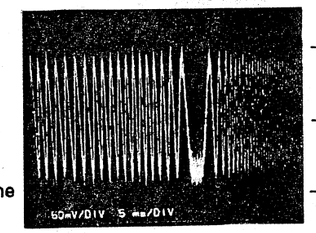
CLV

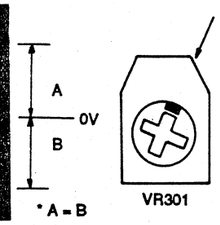




(2) E-F BALANCE ADJUSTMENT
① Turn power on and load a disc.
② Press play.
③ Oscilloscope setting and connection
{VOLT/DIV ; 50mV {(+) terminal ; TP.TE
{TIME/DIV ; 5mS {(–) terminal ; TP. G1
④ Adjust VR304 fully counter clockwise
⑤ Adjust VR301 so the waveform is as shown in the picture.
⑥ Set VR304 back to the place it was before adjustment.

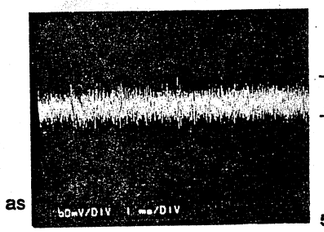
E-F BALANCE

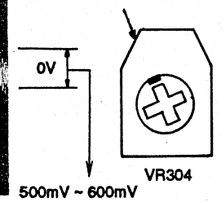




(3) TRACKING GAIN ADJUSTMENT
① Turn power on and load a disc.
② Press play.
③ Oscilloscope setting and connection
{VOLT/DIV ; 50mV {(+) terminal ; TP.TE
{TIME/DIV ; 1mS {(–) terminal ; TP. G1
④ Adjust VR304 so the peak to peak waveform is as shown in the picture.

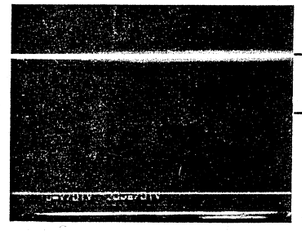
TRACKING GAIN

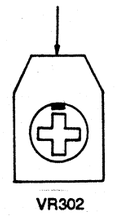




(4) FOCUS BIAS ADJUSTMENT
① Turn power on and load a disc.
② Oscilloscope setting and connection
{VOLT/DIV ; 10mV {(+) terminal ; TP.FE
{TIME/DIV ; 20 μS {(–) terminal ; TP. G1
③ Adjust VR302 so the waveform is as shown in picture. (Adjust in stop mode)

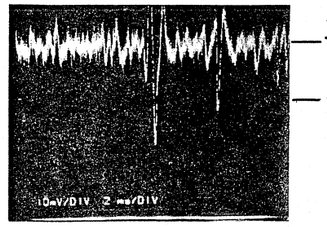
FOCUS BIAS





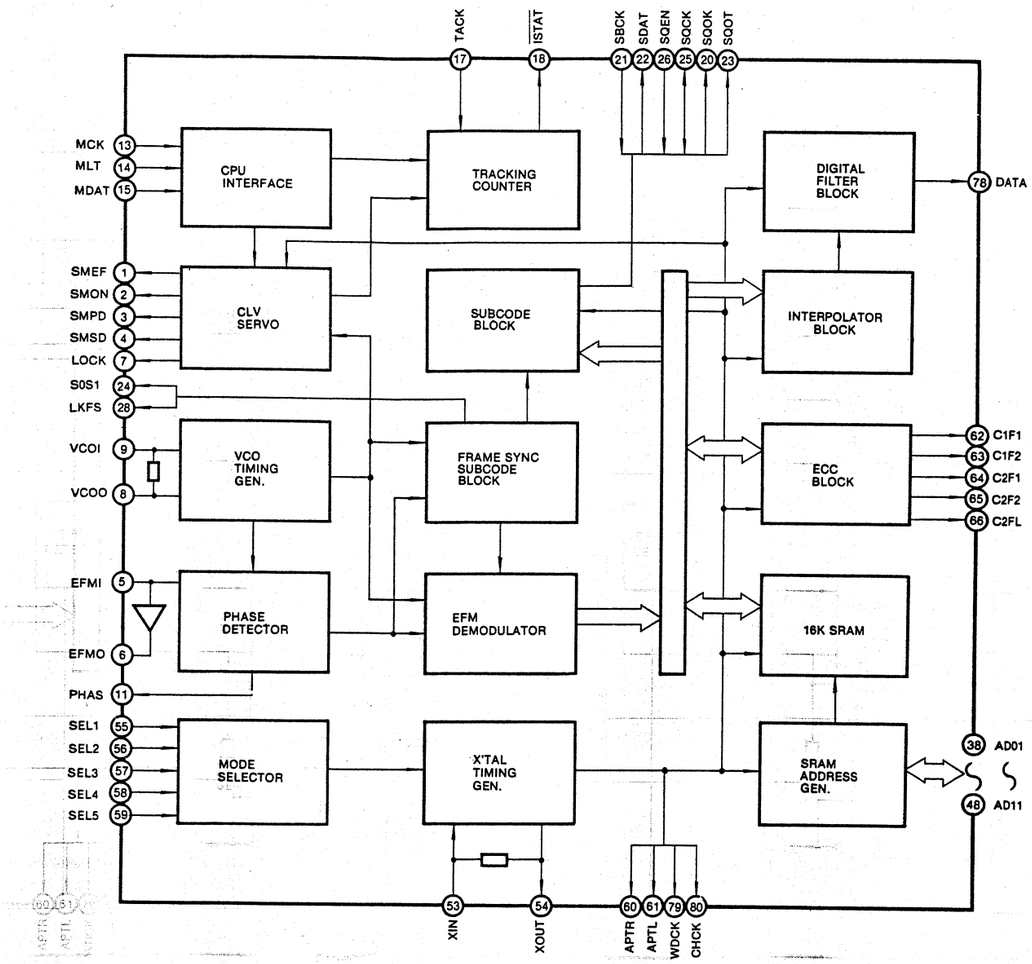
(5) FOCUS GAIN ADJUSTMENT
① Turn power on and load a disc.
② Press play.
③ Oscilloscope setting and connection
VOLT/DIV ; 10mV {(+) terminal ; TP.FE
TIME/DIV ; 2mS {(–) terminal ; TP. G1
④ Adjust VR303 so the peak to peak waveform is shown in the picture.

FOCUS GAIN

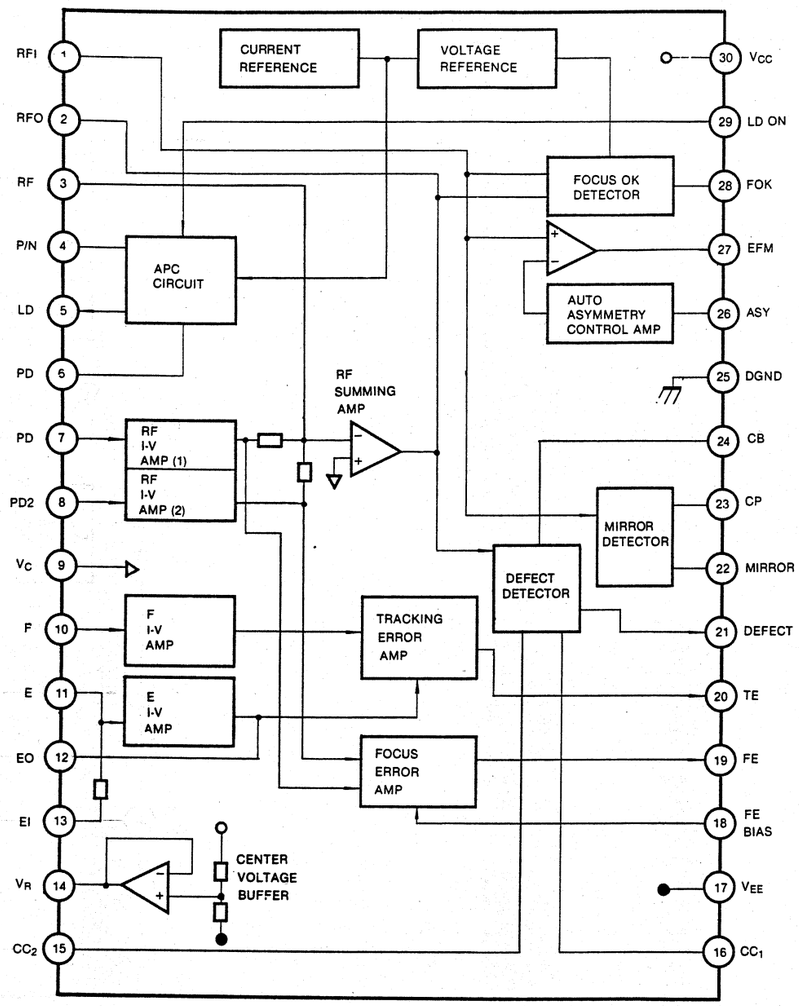


(Pictures taken in 10 : 1 probe)

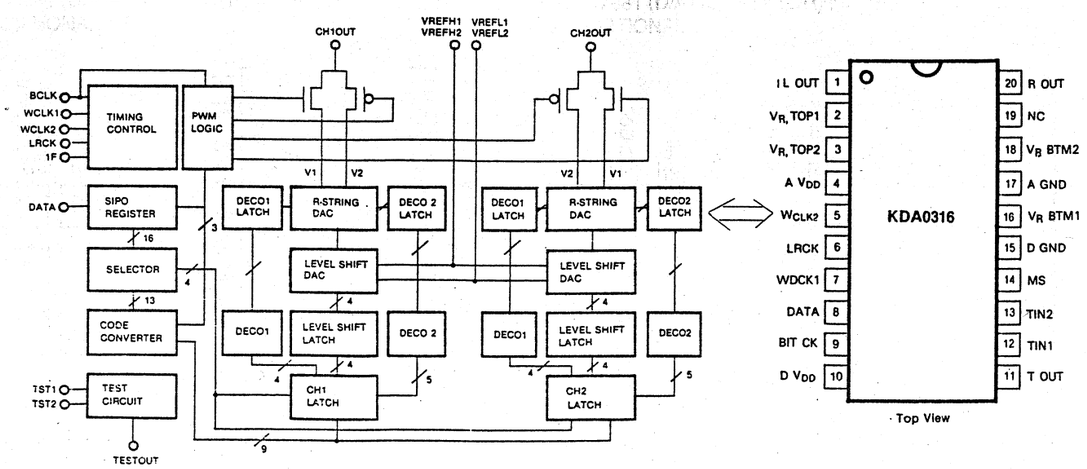
• KS5990/KS59910 (DIGITAL SIGNAL PROCESSOR) : IC401



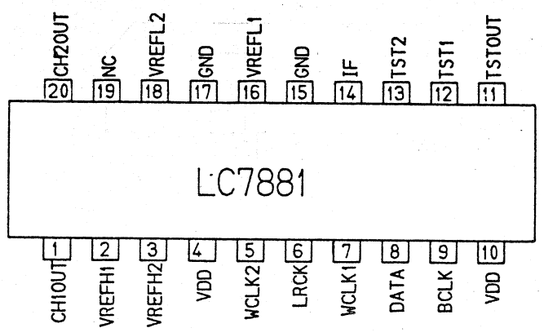
• KA9201 (RF AMP) : IC 301



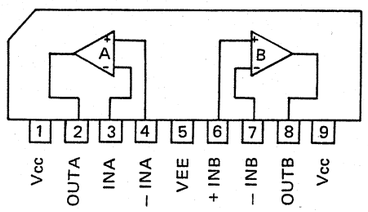
• KDA0316LN (D/A CONVERTOR) : IC501
* OPTIONAL



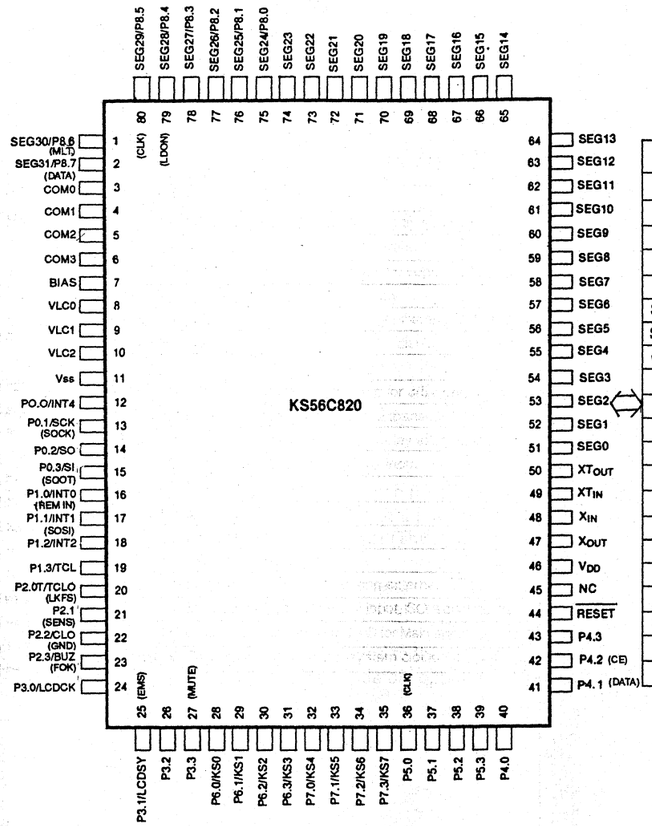
• LC7881 (D/A CONVERTOR) : IC501
* OPTIONAL



• NJM2068SD (OP AMP) : IC502, 503

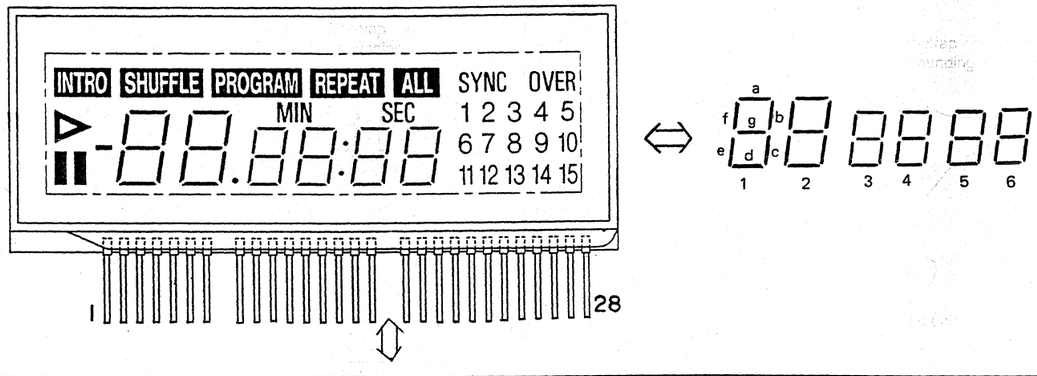


● KS56C820 (MICOM) : IC601



Pin Name	Pin description
P1.0-P1.3	4-bit Input
P2, P7	4-bit Input/Output
P3, P6	I/O mode selectable in 1-bit unit by software
P4, P5	4-bit input/output, N-ch open drain
P8.0-P8.7	Outputs in 1-bit unit (shared with segment outputs)
SEG0-SEG23	Segment output for LCD display
SEG24-SEG31	Segment output for LCD display (shared with Port 8)
COM0-COM3	Common signal output for LCD display
VLC0-VLC2	LCD power supply pin
BIAS	LCD power supply control pin for 3/5V operating
LCDCK	LCD clock output for display expansion
LCDSY	LCD sync. clock output for display expansion
TCL	Timer/Counter external clock input
TCLO	Timer/Counter clock output
INT0, 1, 2, 4	External interrupt input
CLO	Clock output
BUZ	2KHz clock output for buzzer
KS0-KS7	Semi-interrupt input detecting external falling edge
SCK, SI, SO	SCK: serial clock, SI: serial input, SO: serial output
XIN, XOUT	Crystal/Ceramic or RC clock I/O for Main-system clock
XTIN, XTOUT	Crystal clock I/O for sub-system clock

● HLC8036 (CD LCD) : LCD1



No.	COM. 1	COM. 2	COM. 3
1	COM.1		
2		COM. 2	
3			COM. 3
4	INTRO	▷	■■
5	—	1f	1e
6	1 a	1g	1d
7		1b	1c
8	SHUFFLE	2f	2e
9	2 a	2g	2d
10	•	2b	2c

No.	COM. 1	COM. 2	COM. 3
11	PROGRAM	3f	3e
12	3 a	3g	3d
13	MIN	3b	3c
14	REPEAT	4f	4e
15	4 a	4g	4d
16	:	4b	4c
17	ALL	5f	5e
18	5 a	5g	5d
19	SEC	5b	5c

No.	COM. 1	COM. 2	COM. 3
20	SYNC	6f	6e
21	6 a	6g	6d
22	OVER	6b	6c
23	1	6	11
24	2	7	12
25	3	8	13
26	4	9	14
27	5	10	15
28	N C		

SERVICING NOTE

1. Prevent shock hazard by unplugging power supply cord before opening cabinet.
2. Avoid repairing under direct sunshine and heat which may cause cabinet, transistor and IC to be transformed or misoperate.
3. Use a soft cotton swab moistened with warm water or neutral cleaner when parts of unit need to be cleaned.
4. When replacing parts with safety features built in, be sure to use specified parts with same specs only.
5. Avoid repairing the set near TV or any other magnetic forces.
6. Disconnect plug from wall socket during electric storm to reduce the risk of damage.
7. Be careful of electrostatic source when using control IC.
8. Be sure not to separate the pick-up from the unit.

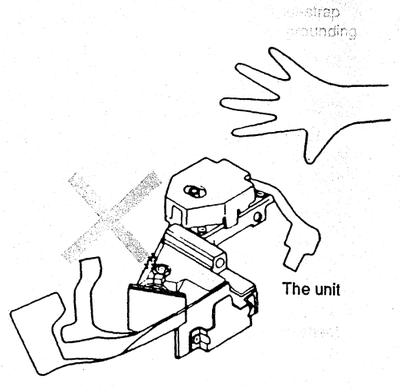
HANDLING THE OPTICAL PICK-UP

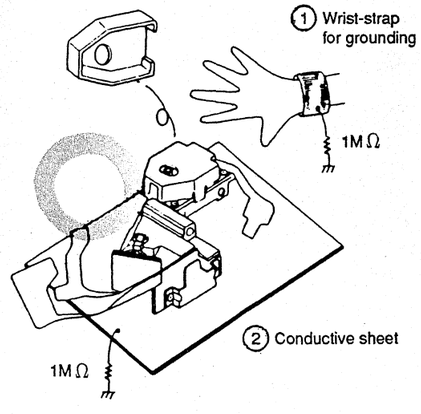
The laser diode in the optical pick up may suffer electrostatic breakdown because of potential static electricity from clothing and your body.

The following method is recommended.

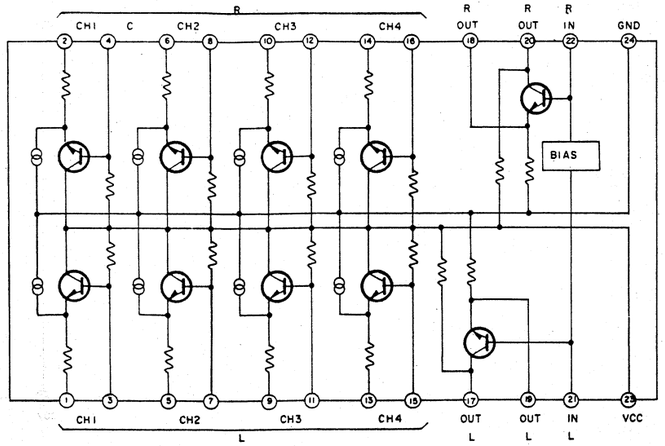
1. Place a conductive sheet on the work bench (The black sheet used as wrapping for repair parts).
2. Place the set on the conductive sheet so that the chassis is grounded to the sheet.
3. Place your hands on the conductive sheet (This gives them the same ground as the sheet).
4. Remove the optical pick up block.
5. Perform work on top of the conductive sheet.
   Be careful not to let your clothes or any other static sources to touch the unit.

* Be sure to put on a wrist strap grounded to the sheet.
* Be sure to lay a conductive sheet made of copper etc. which is grounded to the table.

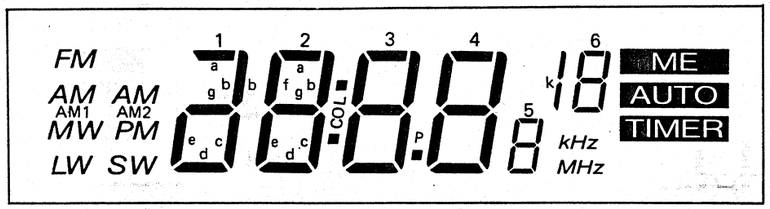




- KA22234 (EQUALIZER IC) : QIC1

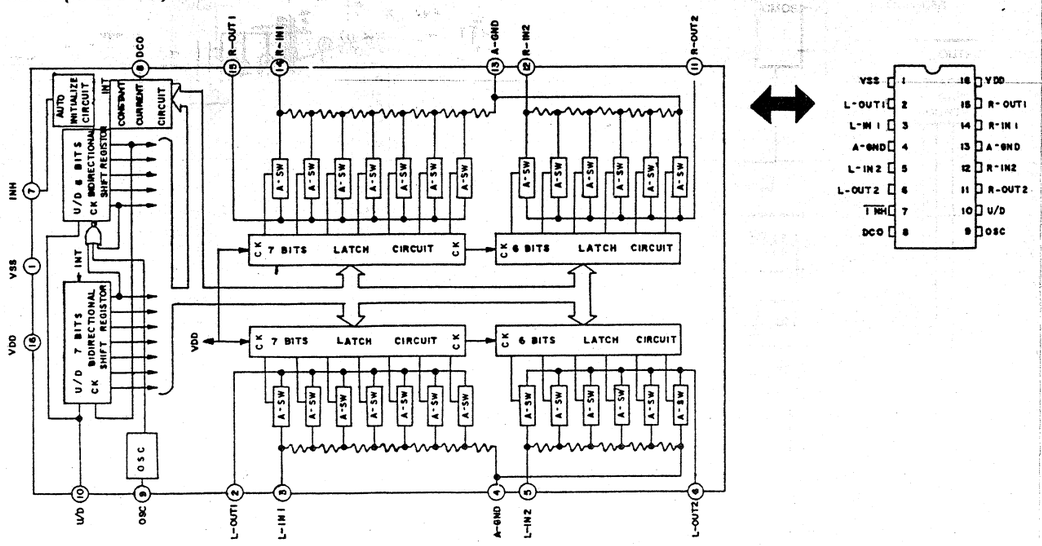


- LE-0605CP (TUNER LCD) : ULCD1



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COM1	COM1	/	/	AM 1	MW	SW	PM	/	B1	C1	F2	E2	D2	A2	F3	E3
COM2	/	COM2	FM	/	/	LW	/	AM2	ADEG1	COL	B2	G2	C2	/	B3	G3
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
COM1	D3	A3	F4	E4	D4	A4	G5	BE5	KHz	E6	D6	TIME-R	A6	ME	F6	
COM2	C3	/	B4	G4	C4	/	ACDF5	/	MHz P	G6	C6	K	/	AUTO	B6	

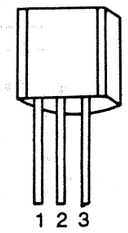
- TC9153AP (IC-E/C VR) : QIC3



2. CD

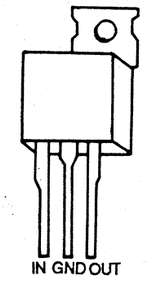
- TR & DIODE

1)

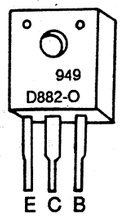


TR	1	2	3
KSA931, KSC2331, KSR2003 KSR1003, KSR1007	E	C	B
KSA708, KSB564, KSC945 KSC1008	E	B	C
MC79L05	G	IN	OUT

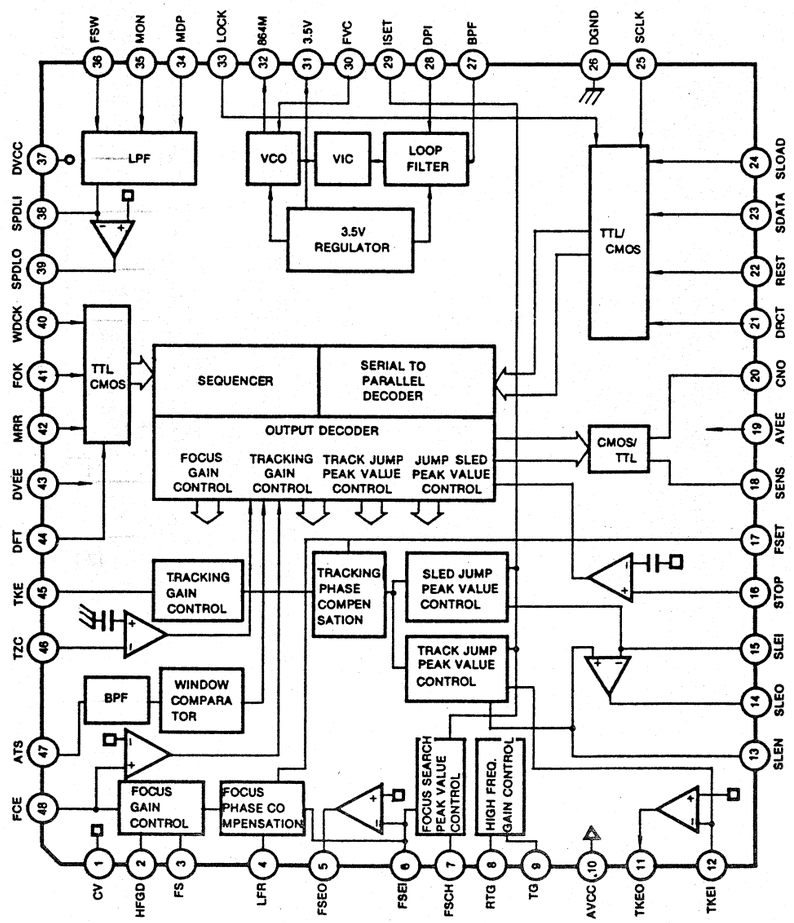
2) MC7805C

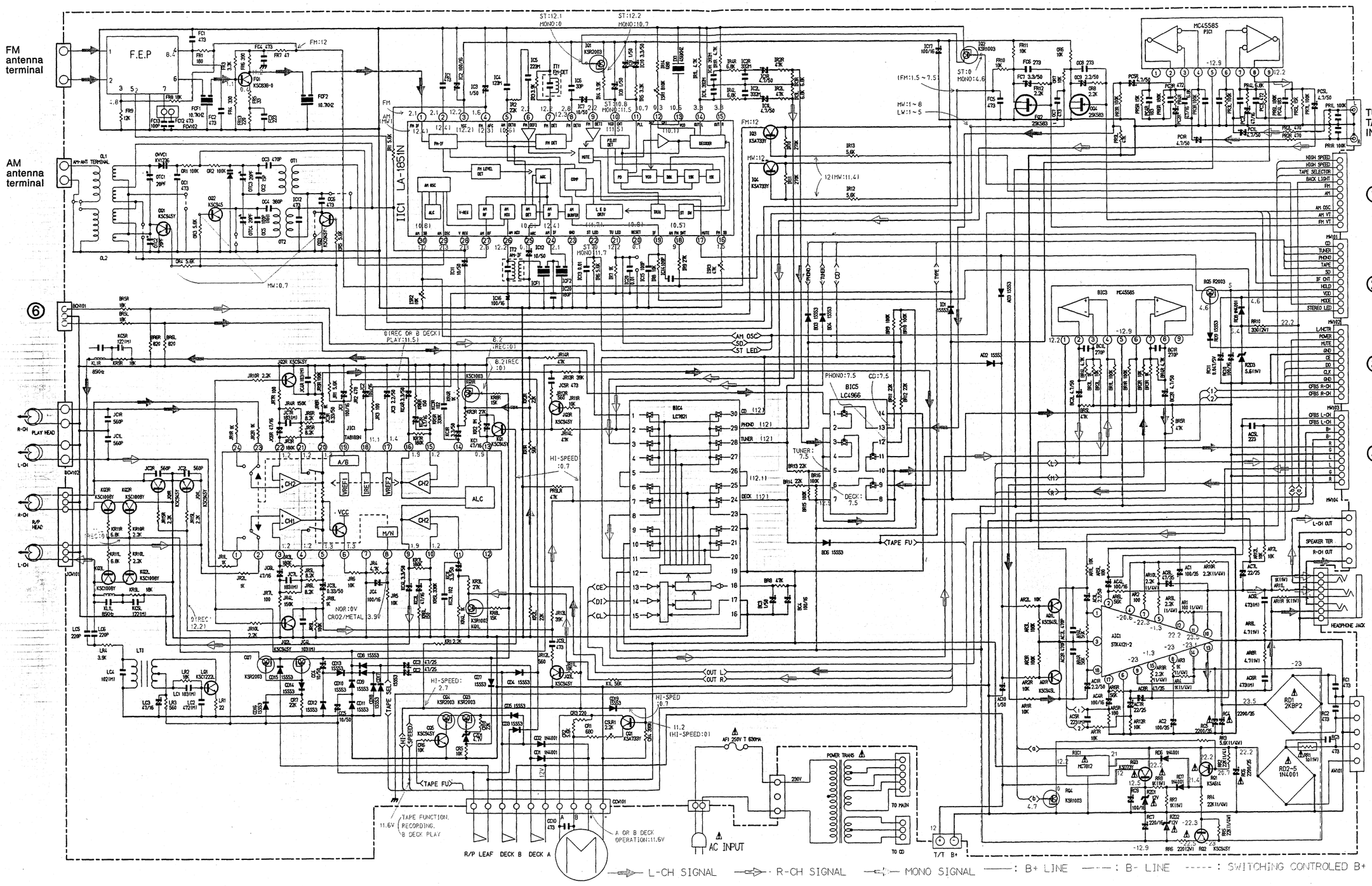


3) KSD882, KSB772



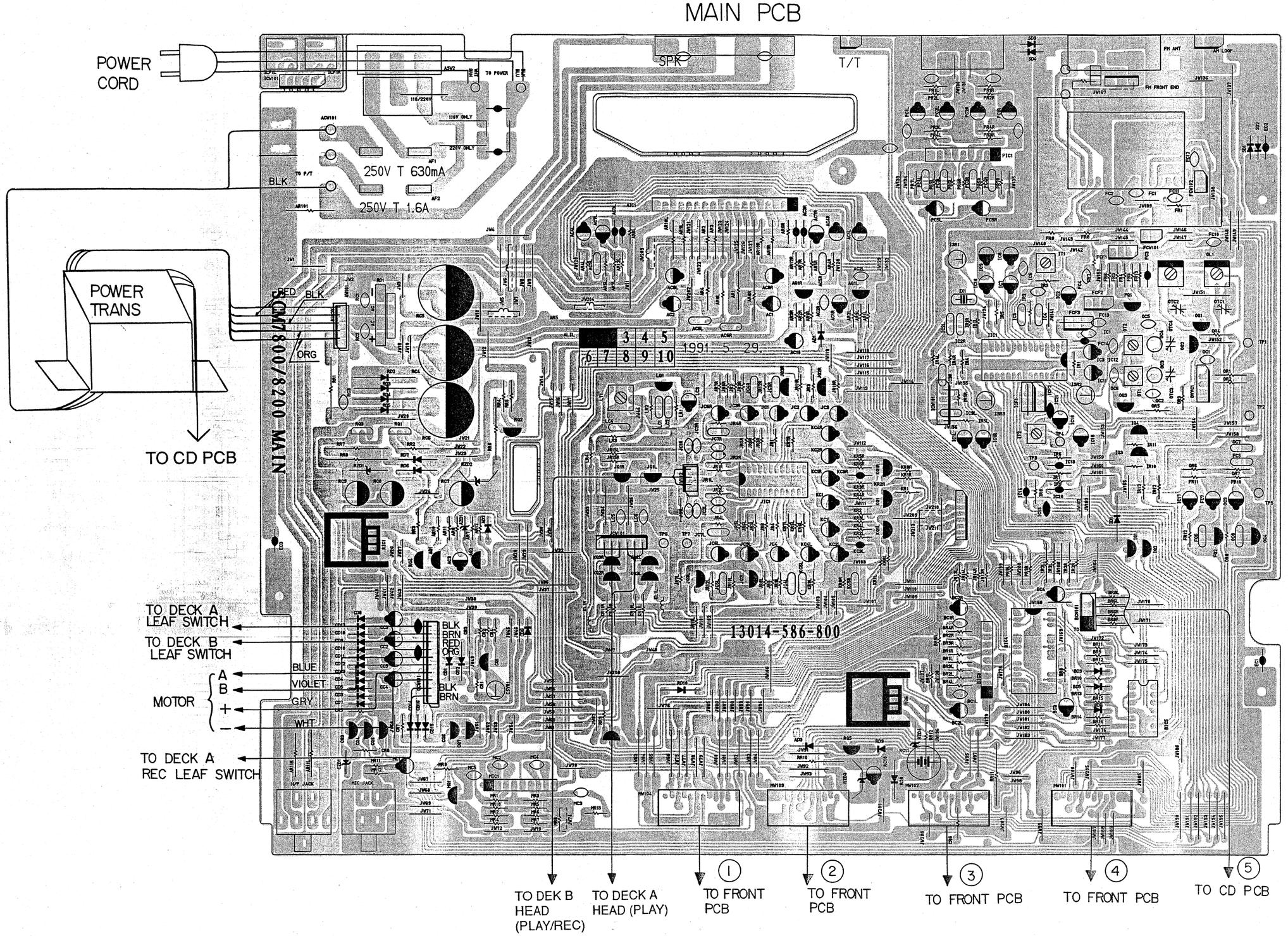
- KA830 (IC-SS PROCESSOR) : IC201

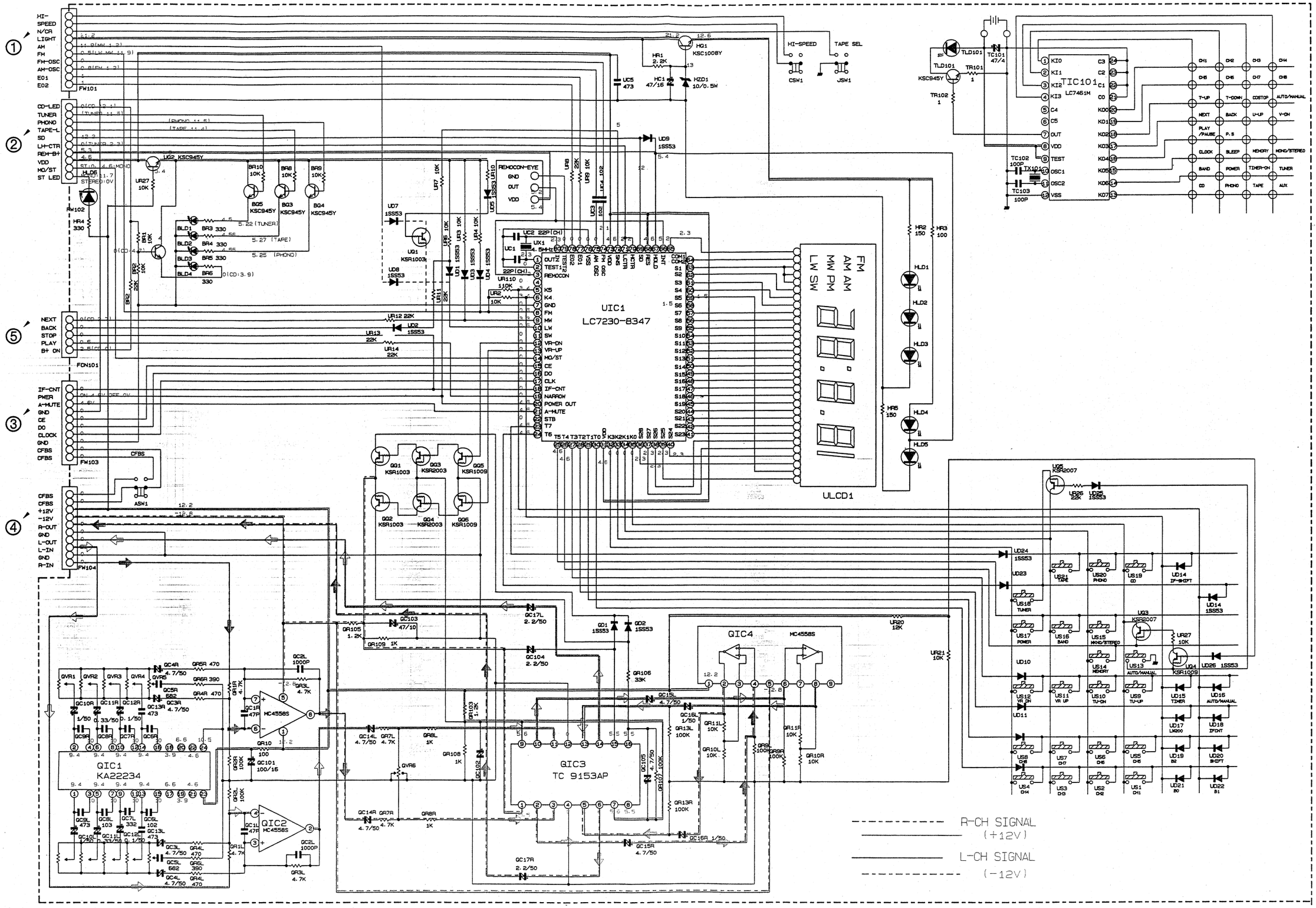



FM antenna terminal
AM antenna terminal
TURN TABLE INPUT
F.E.P
IIC1 LA-1851N
MC4558S
BIC4 LC7821
BIC5 LC4966
BIC3 MC4558S
AIC1 STK4121-2
RD1 2KBP2
RD2~5 1N4001
POWER TRANS
TO MAIN
TO CD
AC INPUT
T/T B+
R/P LEAF DECK B DECK A
TAPE FUNCTION. 11.6V RECORDING. B DECK PLAY
A OR B DECK OPERATION:11.6V
HEADPHONE JACK
SPEAKER TER
L-CH OUT
R-CH OUT
PLAY HEAD
R/P HEAD
L-CH SIGNAL
R-CH SIGNAL
MONO SIGNAL
: B+ LINE
: B- LINE
: SWITCHING CONTROLED B+

■ WIRING DIAGRAM (PARTS SIDE)

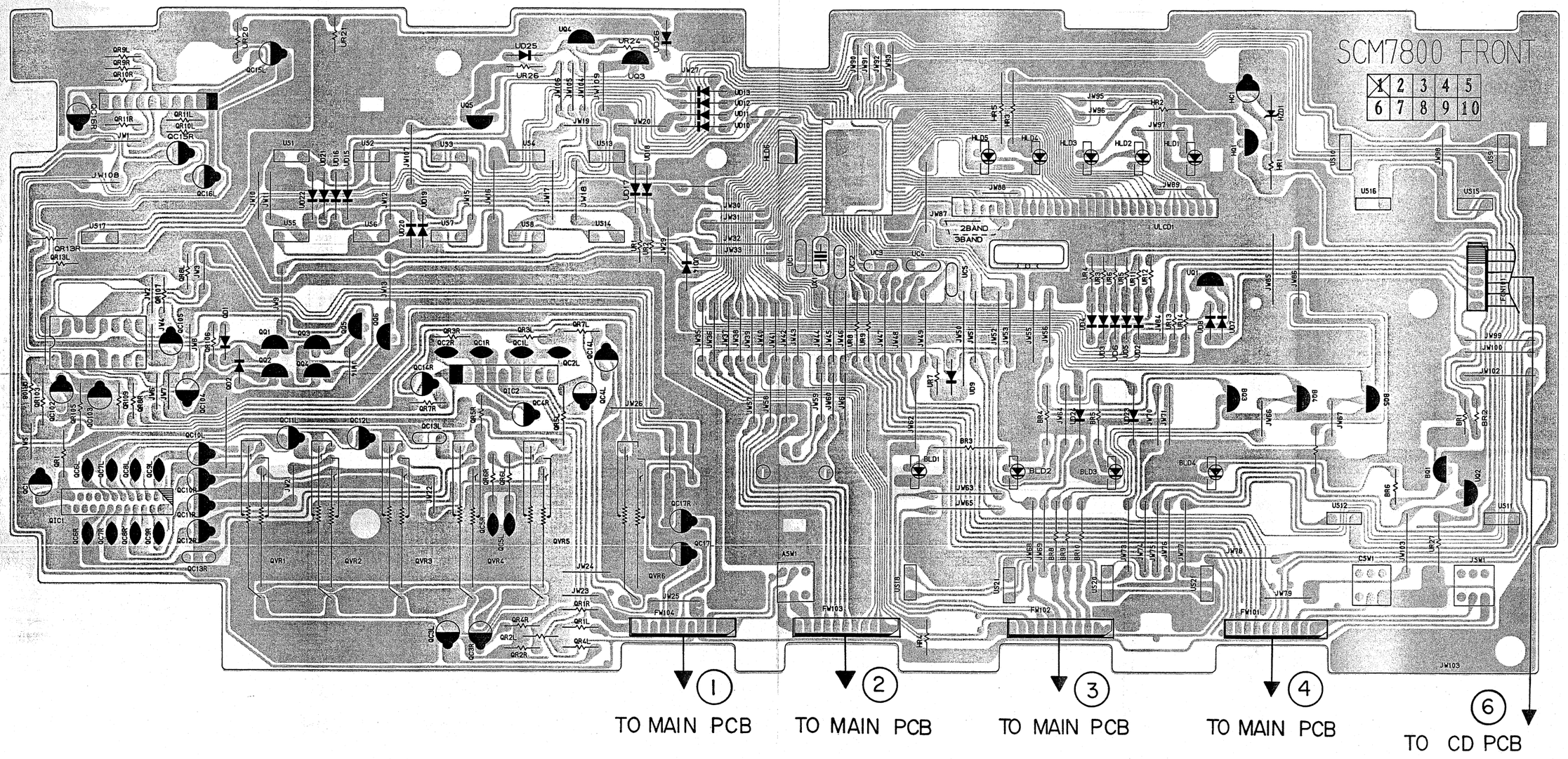
1. MAIN SECTION




HI-SPEED
N/CR
LIGHT
AM
FM
FM-OSC
AM-OSC
E01
E02
FW101
CD-LED
TUNER
PHONO
TAPE-L
SD
LH-CTR
REM-B+
VDD
MO/ST
ST LED
NEXT
BACK
STOP
PLAY
B+ ON
FCN101
IF-CNT
PWER
A-MUTE
GND
CE
DO
CLOCK
GND
CFBS
CFBS
FW103
CFBS
CFBS
+12V
-12V
R-OUT
GND
L-OUT
L-IN
GND
R-IN
FW104
HQ1 KSC1008Y
HC1 47/16
HZD1 10/0.5W
HI-SPEED
TAPE SEL
CSW1
JSW1
TLD101
KSC945Y
TR101
TR102
TC101 47/4
TIC101
LC7451M
REMOCON-EYE
GND
OUT
VDD
UIC1
LC7230-8347
FM
AM AM
MW PM
LW SW
ULCD1
HLD1
HLD2
HLD3
HLD4
HLD5
QIC1
KA22234
QIC2
MC4558S
QIC3
TC 9153AP
QIC4
MC4558S
ASW1
R-CH SIGNAL (+12V)
L-CH SIGNAL (-12V)

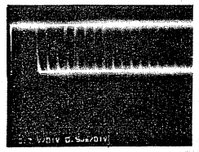
2. FRONT SECTION

FRONT PCB



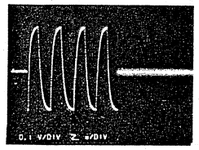
3. CD SECTION

① EFM

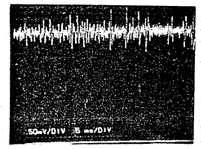


0.2V/DIV 0.5 μS/DIV

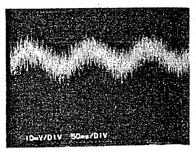
②FEO (no disc)

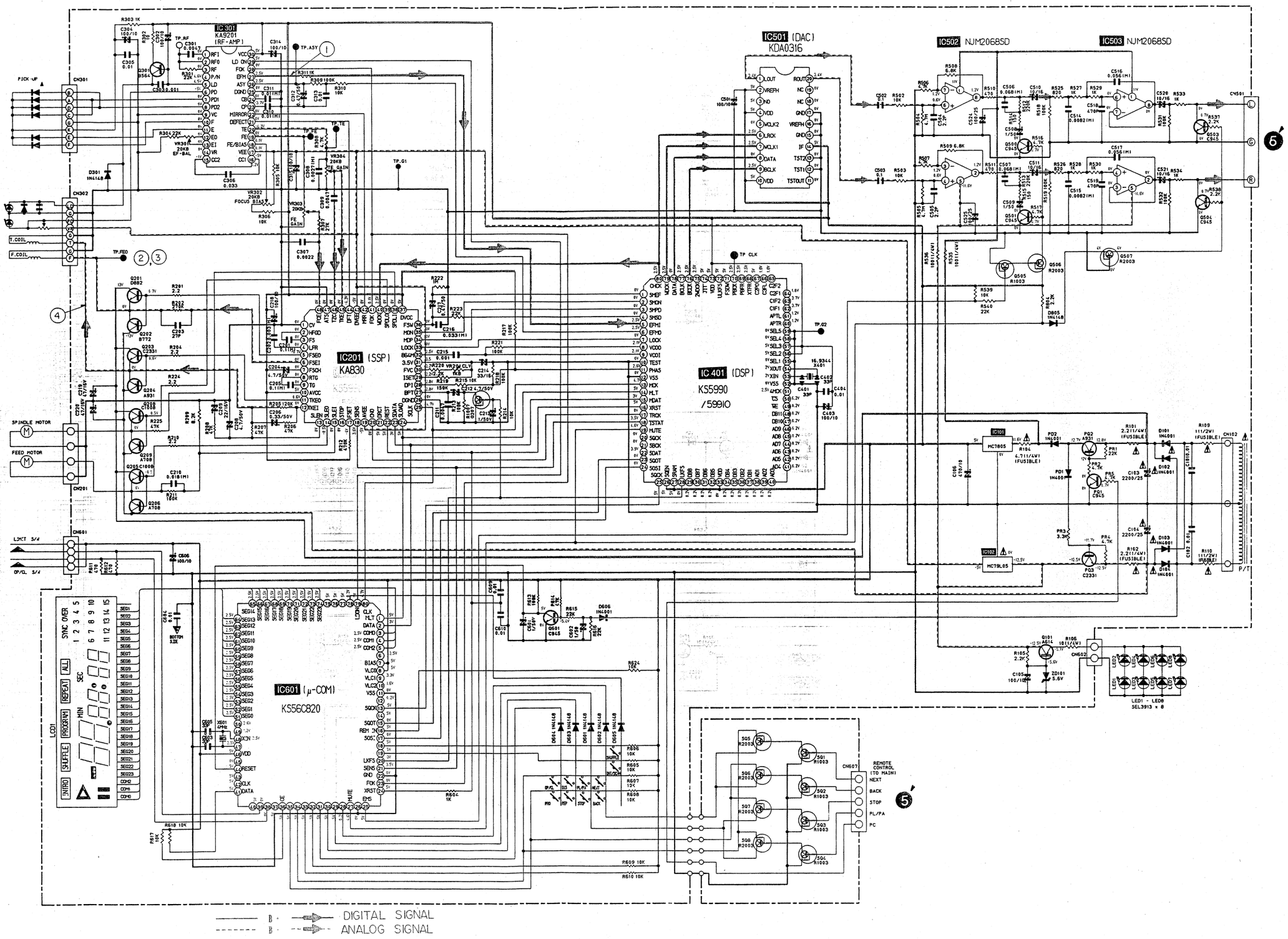


③FEO (play)

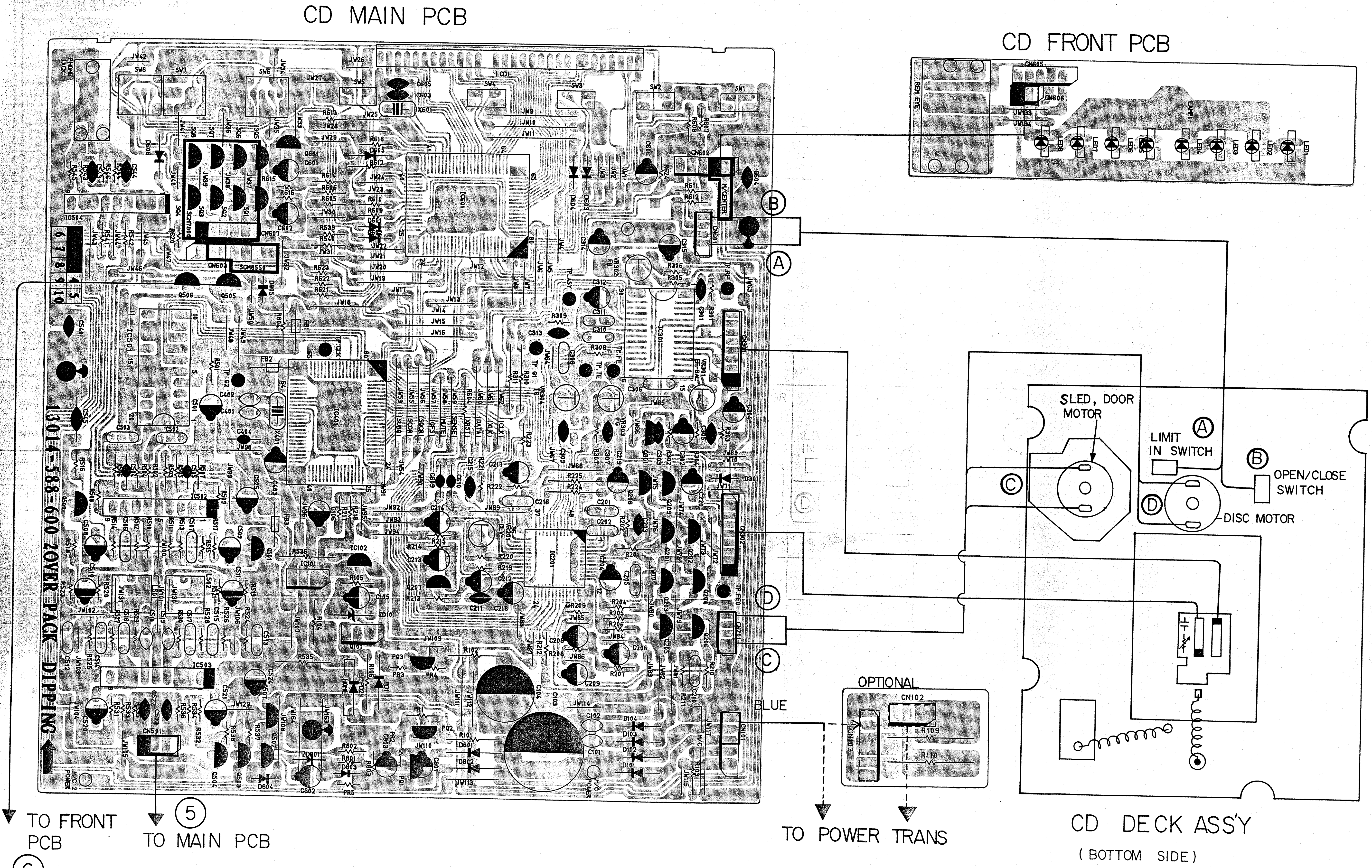


④ TEO





3. CD SECTION


CD MAIN PCB
CD FRONT PCB
REM EYE
SLED, DOOR MOTOR
LIMIT IN SWITCH
OPEN/CLOSE SWITCH
DISC MOTOR
OPTIONAL
BLUE
13014-588-600 2OVER PACK DIPPING
TO FRONT PCB
TO MAIN PCB
TO POWER TRANS
CD DECK ASS'Y
(BOTTOM SIDE)

■ ADJUSTMENT

Adjustments to this unit have already been made during production procedure.
Therefore, no adjustment is needed. If parts related to the adjustment are replaced, or readjustment is required, proceed with adjustments in the order given below.

1. TUNER

1) MEASURING INSTRUMENTS REQUIRED

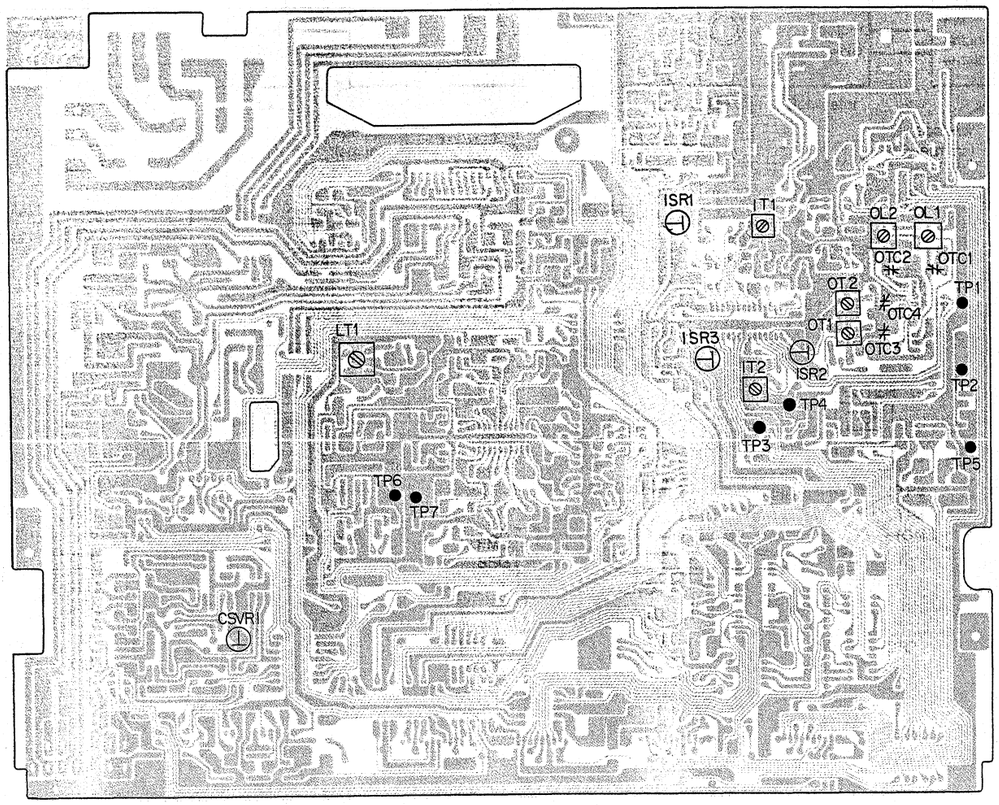
(1) AM standard signal generator (S.S.G)
: 400Hz, 30% MOD.
(2) FM standard signal generator
: output impedance 75 Ω , (or 300 Ω dummy), 1KHz, 40KHz DEV.
(3) OSCILLOSCOPE (4) VTVM
(4) VTVM (5) Frequency counter
(6) Loop antenna
(7) Dummy load (8 Ω)
(8) DC voltmeter

2) IMPORTANTS

(1) Check the power source voltage.
(2) Set function and band switches to a band to be aligned.
(3) The equalizer, volume and balance control should be turned to the mid position.

3) LOCATION OF ADJUSTMENT POINTS (PARTS SIDE)

MAIN PCB



4) ADJUSTMENT PROCEDURE

(1) FM ADJUSTMENT

STEP	ITEM	CONNECTION	SSG FREQ.	FREQ. SETTING	ADJUSTMENT POINT	RESULT & REMARK
1	IF CENTER & T.H.D adjustment	FIG. 1	98MHz	98.7MHz	IT1	Distortion minimum
2	Auto search level adjustment	FIG. 2	98MHz	98MHz	ISR2	0V
3	FM stereo separation adjustment	FIG. 3	98MHz	98MHz	ISR1	If L-CH is input, R-CH should be minimum and visa-versa.

*** High coverage and tracking adjustment are not required.**

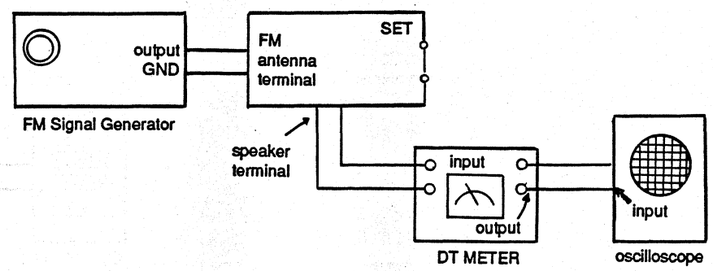


FIG.1) IF CENTER AND T.H.D

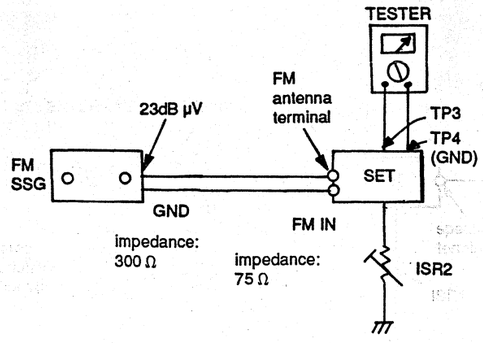


FIG. 2) AUTO SEARCH LEVEL

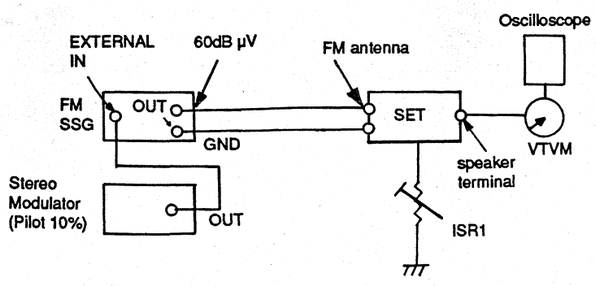


FIG. 3) FM STEREO SEPARATION

(2) AM ADJUSTMENT

① 2 BAND (FM/AM)

STEP	ITEM	CONNECTION	SSG FREQ.	FREQ. SETTING	ADJUSTMENT POINT	RESULT & REMARK
1	Intermidiate frequency (IF) adjustment	FIG. 4	522KHz	522KHz	IT2	Maximum output
2	AM frequency coverage adjustment	Connect DC voltmeter to TP1 and GND (TP2).	—	522KHz	OT1	1V
3			—	1611KHz	OTC3	8V
4	Repeat step 2 and 3 several times.					
5	AM tracking adjustment	FIG. 4	594KHz	594KHz	OL1	Maximum output
6			1404KHz	1404KHz	OTC1	Maximum output
7	Repeat step 5 and 6 several times.					
8	AM auto search level adjustment	FIG. 5	999KHz	999KHz	ISR3	0V

② 3 BAND (FM/MW/LW) * MW band : Refer to 2 band section. (MW → AM)

STEP	ITEM	CONNECTION	SSG FREQ.	FREQ. SETTING	ADJUSTMENT POINT	RESULT & REMARK
1	LW frequency coverage adjustment	FIG. 4		146KHz	OT2	1V
2				290KHz	OTC4	5V
3	Repeat step 1 and 2.					
4	LW tracking adjustment	FIG. 4	160KHz	160KHz	OL2	Maximum output
5			270KHz	270KHz	OTC2	Maximum output
6	Repeat step 4 and 5 several times.					

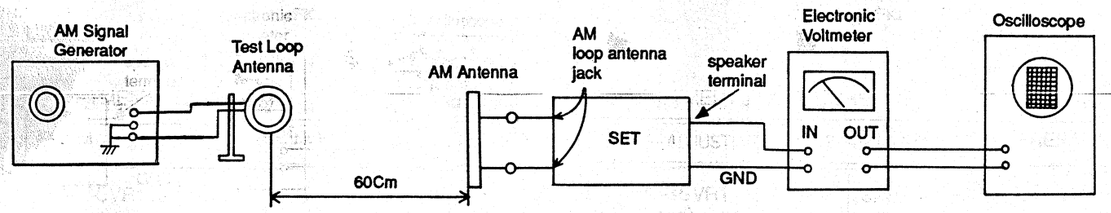


FIG. 4) AM TRACKING

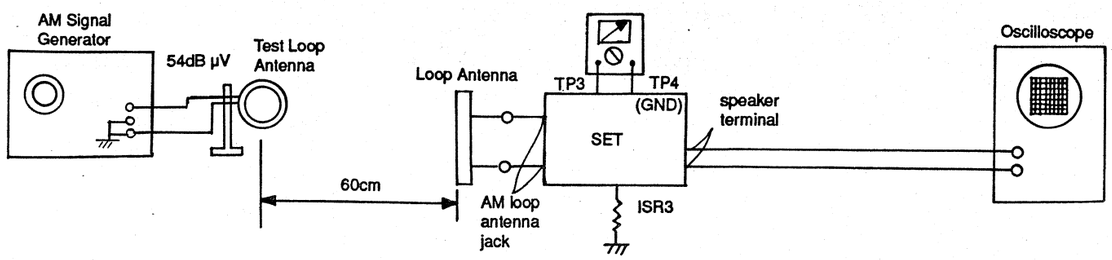


FIG. 5) AM AUTO SEARCH LEVEL

2. TAPE

1) ADDITIONAL TEST EQUIPMENTS

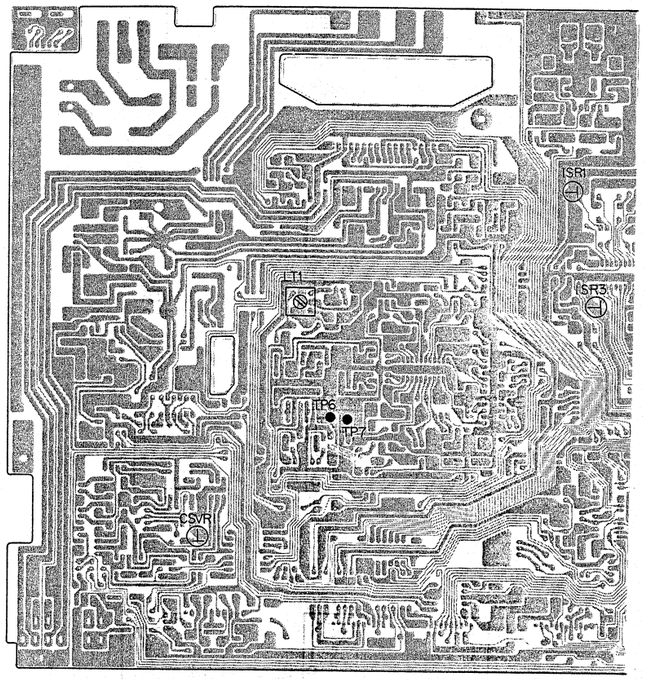
① MTT-111 (or equivalent) : Test tape on which 3KHz signal is recorded → Tape speed adjustment

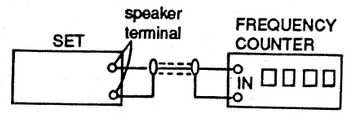
② MTT-5521 (or equivalent) or blank tape

③ MTT-114NA (or equivalent) : Test tape on which 12.5KHz signal is recorded → Azimuth adjustment

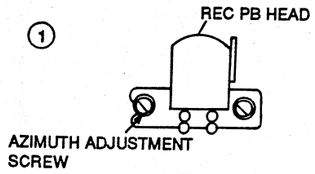
2) LOCATION OF ADJUSTMENT POINTS (PARTS SIDE)

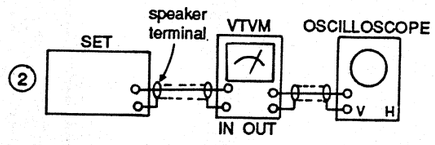
MAIN PCB



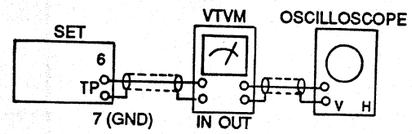


<FIG. 1>





<FIG. 2>



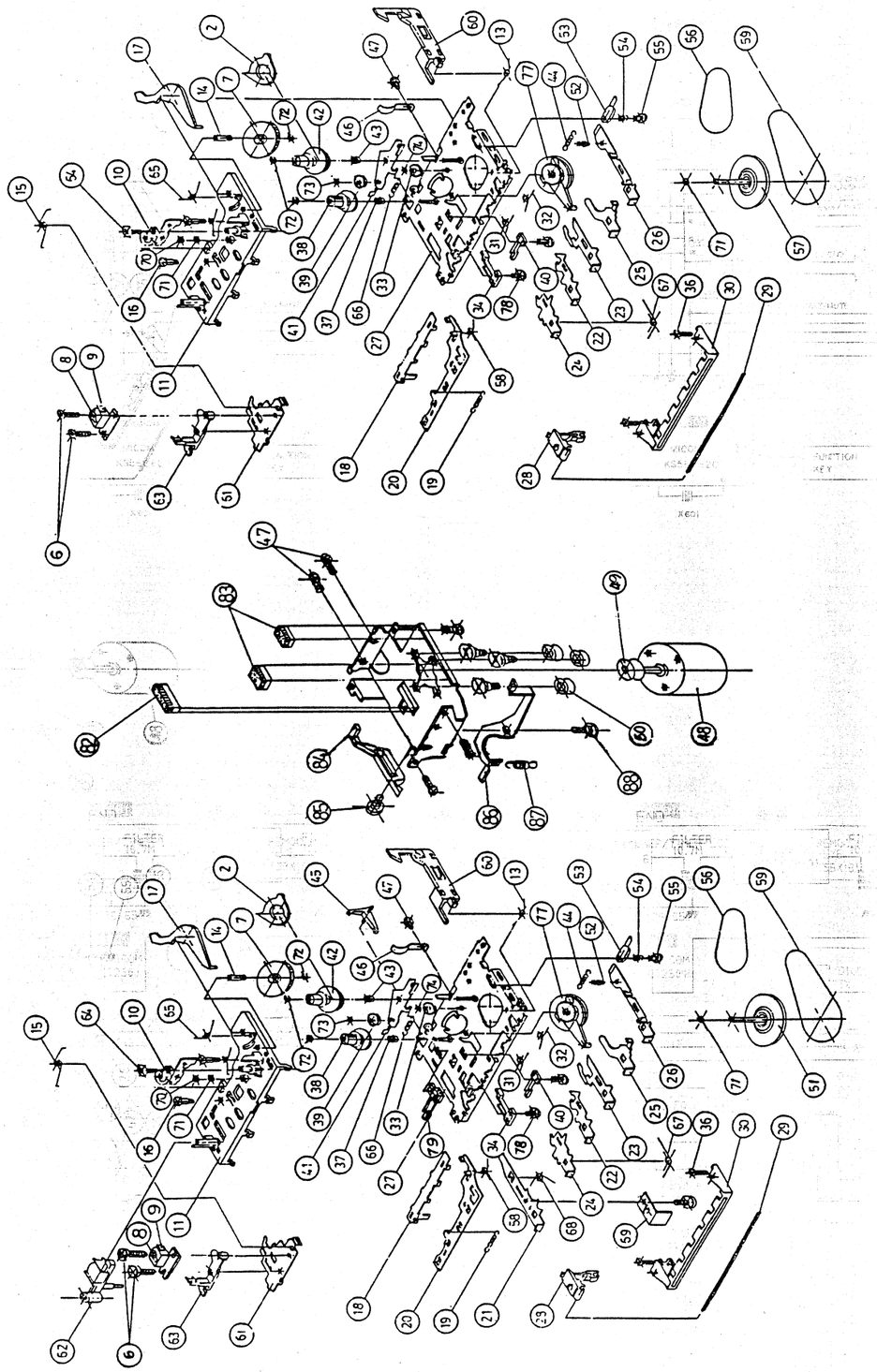
<FIG. 3>

3) ADJUSTMENT PROCEDURE * High speed adjustment is not required.

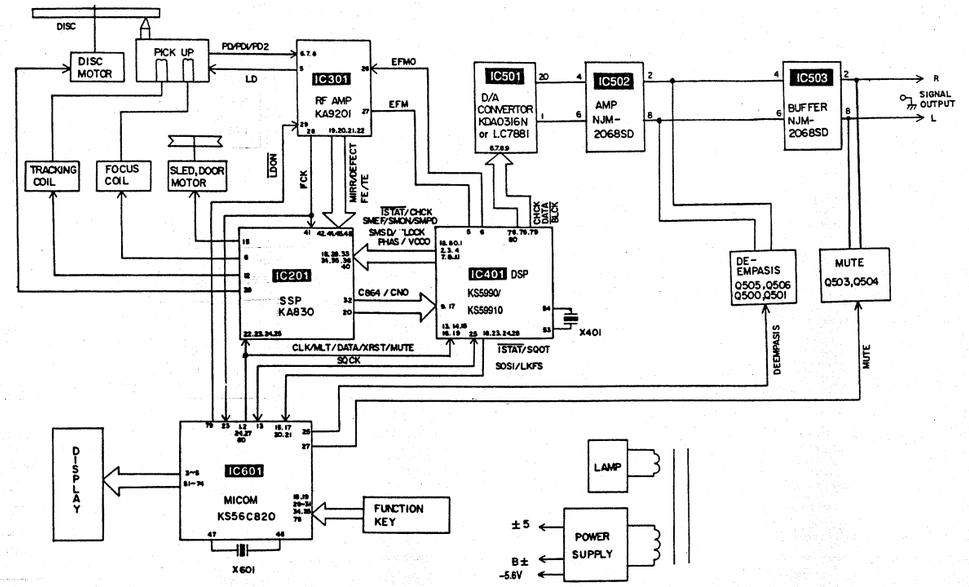
ITEM	CONNECTION	PREPARATION	ADJUSTMENT POINT	RESULT & REMARK
TAPE SPEED (normal speed) ADJUSTMENT	FIG. 1	Insert MTT-111 to deck A or B. Press PLAY.	CSVR1	3KHz
AZIMUTH (DECK A, B) ADJUSTMENT	FIG. 2 ②	Insert MTT-114 to deck A. (and B) Press PLAY.	<FIG. 2> : ①	Maximum output and same phase of L, R channel. Fix the screw after adjustment.
BIAS OSCILLATION FREQUENCY ADJUSTMENT	FIG. 3	Insert MTT-5521 to deck A. Press RECORD.	LT1	85KHz

2. CASSETTE DECK ASSEMBLY

- EXPLODED VIEW (CASSETTE DECK ASS'Y)

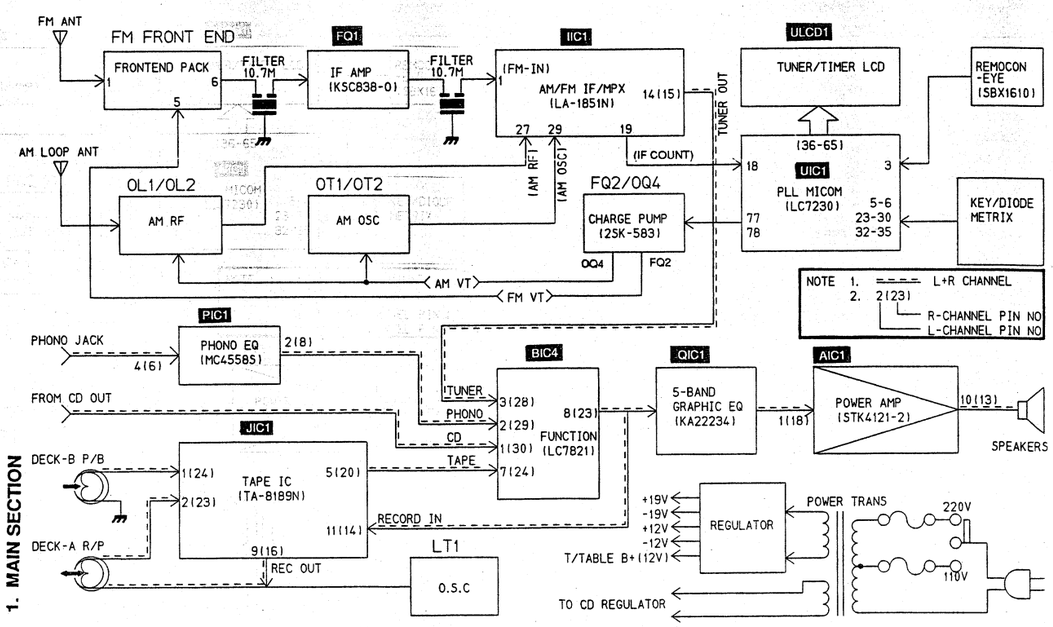


2. CD SECTION



BLOCK DIAGRAM

1. MAIN SECTION

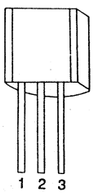


■ IC & TR INTERNAL DIAGRAM

1. MAIN

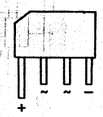
• TR & DIODE

1)

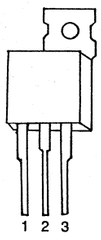


TR	1	2	3
KSR2003, KSR1003, KSR1007 KSR1009, KSR2007	E	C	B
KSC945, KSC1008 KSA733, KSC838	E	B	C

2) 2KBPO2 (DIODE) : RD1

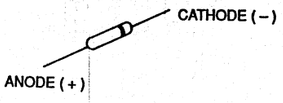


3)

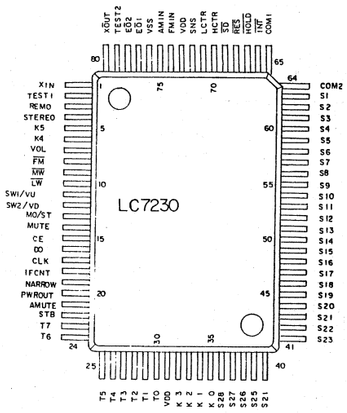


TR	1	2	3
MC7812C	IN	GND	OUT
KSD73-Y KS614-O	B	C	E

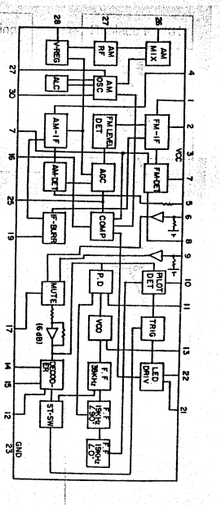
4) 1N4148M/1SS53, 1N4001, ZENER DIODE



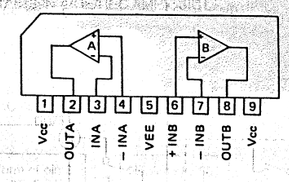
• LC7230-8347 (PLL μ-COM IC) : UIC1



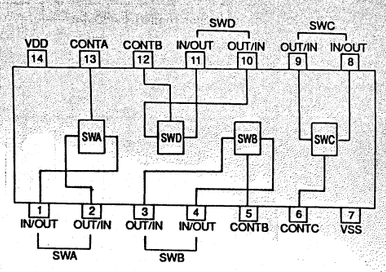
• LA1851N (FM, AM, IF IC) : IIC1



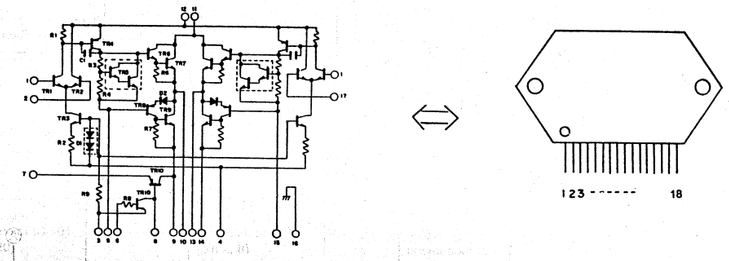
• MC4558S (OP AMP) : QIC2, 4 MIC1, BIC3, PIC1



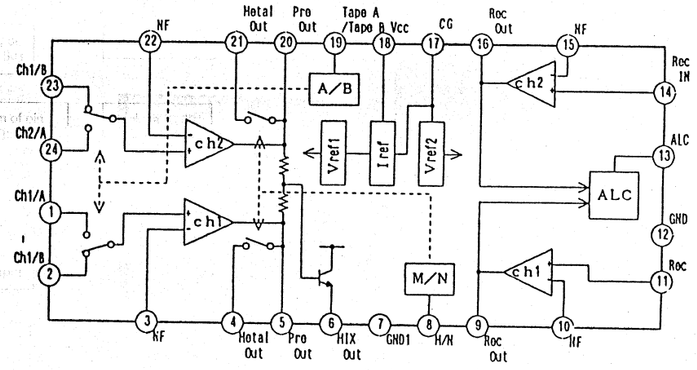
• LC4966 (IC-SWITCH) : BIC5



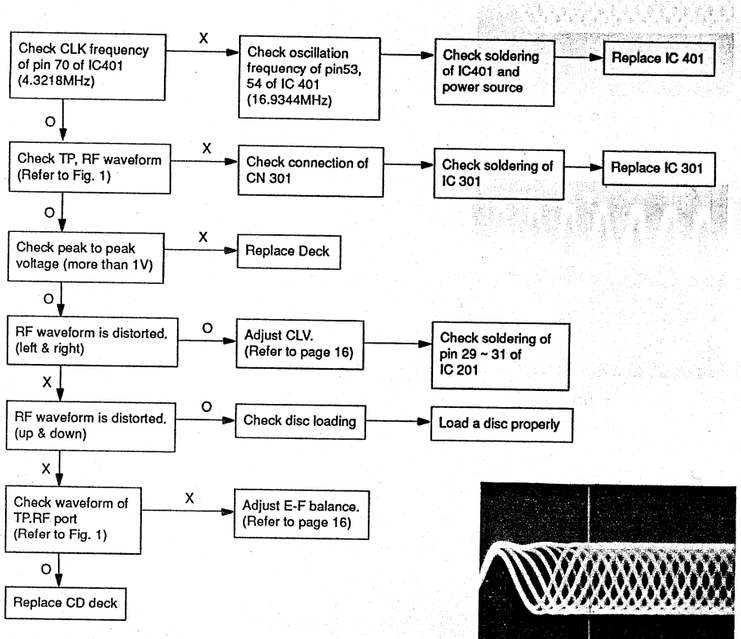
• STK4121-2 (POWER IC) : AIC1



• TA8189N (PRE/REC AMP) : JIC1



2) LEAD IN NOT WORKING


Check CLK frequency of pin 70 of IC401 (4.3218MHz)
X
Check oscillation frequency of pin53, 54 of IC 401 (16.9344MHz)
Check soldering of IC401 and power source
Replace IC 401
O
Check TP, RF waveform (Refer to Fig. 1)
X
Check connection of CN 301
Check soldering of IC 301
Replace IC 301
O
Check peak to peak voltage (more than 1V)
X
Replace Deck
O
RF waveform is distorted. (left & right)
O
Adjust CLV. (Refer to page 16)
Check soldering of pin 29 ~ 31 of IC 201
X
RF waveform is distorted. (up & down)
O
Check disc loading
Load a disc properly
X
Check waveform of TP.RF port (Refer to Fig. 1)
X
Adjust E-F balance. (Refer to page 16)
O
Replace CD deck

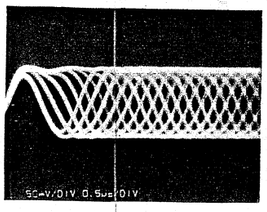
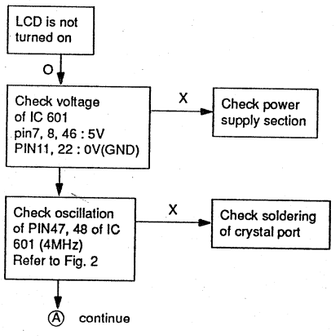


FIG. 1

3) DISPLAY NOT WORKING


LCD is not turned on
O
Check voltage of IC 601 pin7, 8, 46 : 5V PIN11, 22 : 0V(GND)
X
Check power supply section
Check oscillation of PIN47, 48 of IC 601 (4MHz) Refer to Fig. 2
X
Check soldering of crystal port
Ⓐ continue

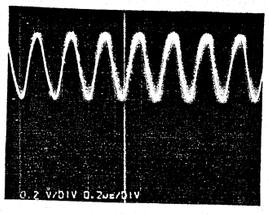


FIG. 2

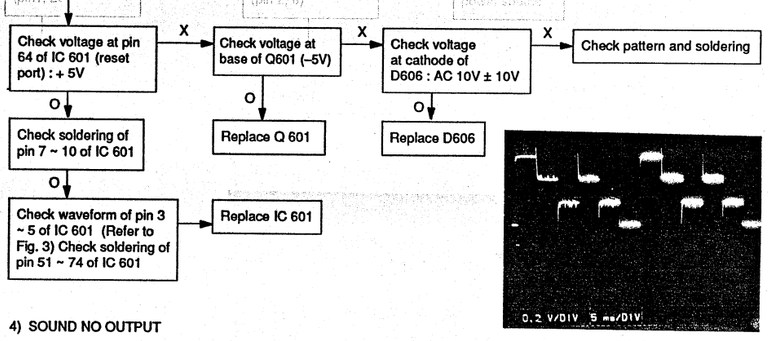
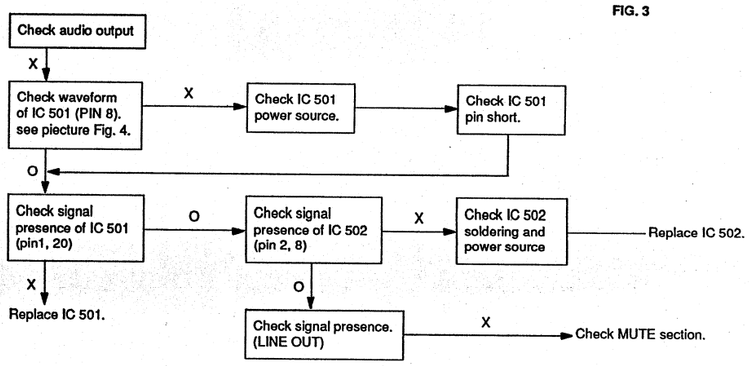

Ⓐ
Check voltage at pin 64 of IC 601 (reset port) : + 5V
X
Check voltage at base of Q601 (–5V)
X
Check voltage at cathode of D606 : AC 10V ± 10V
X
Check pattern and soldering
O
Check soldering of pin 7 ~ 10 of IC 601
Replace Q 601
Replace D606
O
Check waveform of pin 3 ~ 5 of IC 601 (Refer to Fig. 3) Check soldering of pin 51 ~ 74 of IC 601
Replace IC 601

FIG. 3

4) SOUND NO OUTPUT



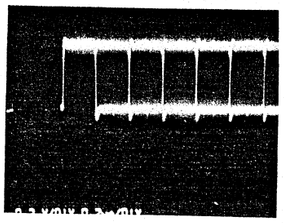
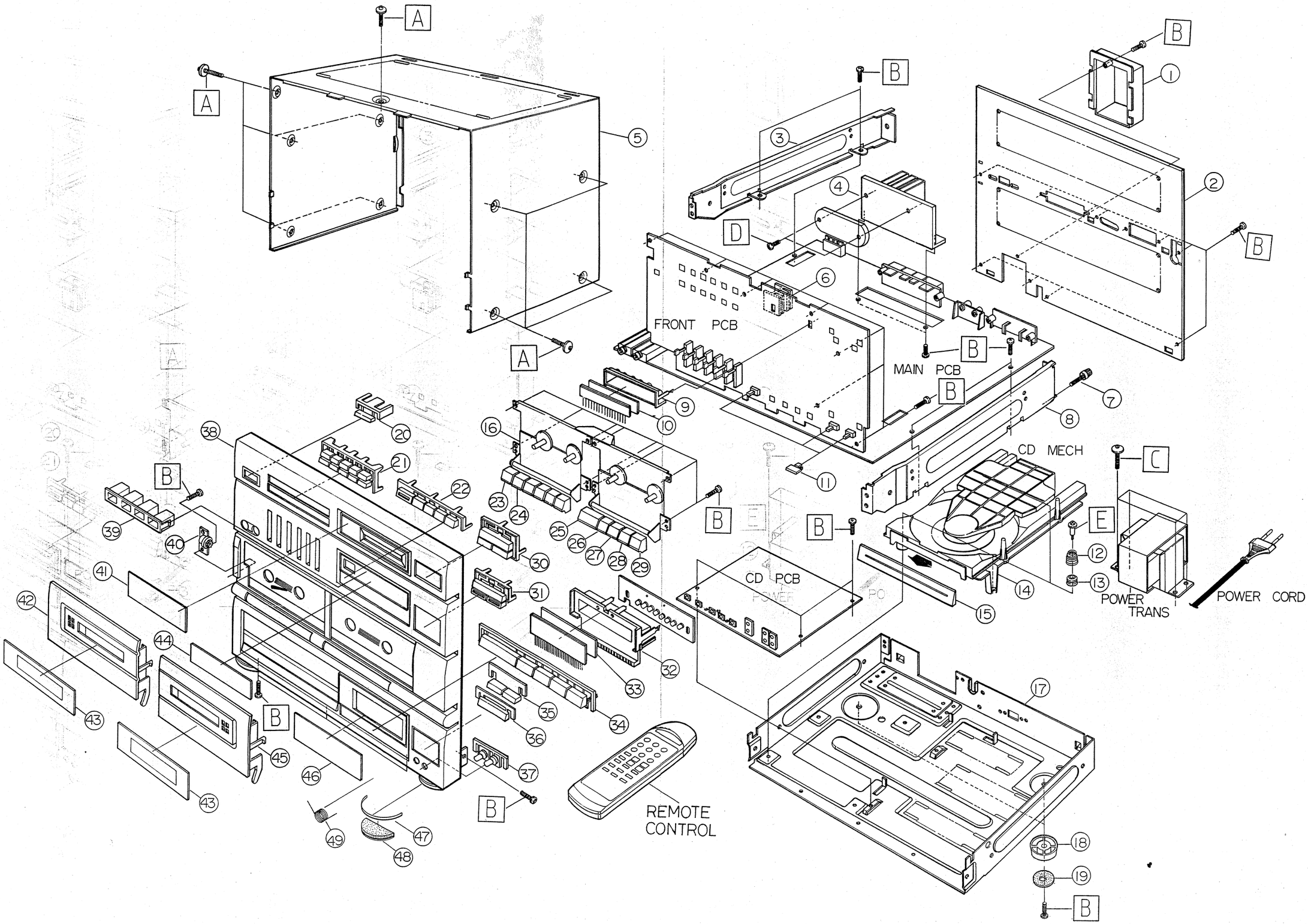


FIG. 4

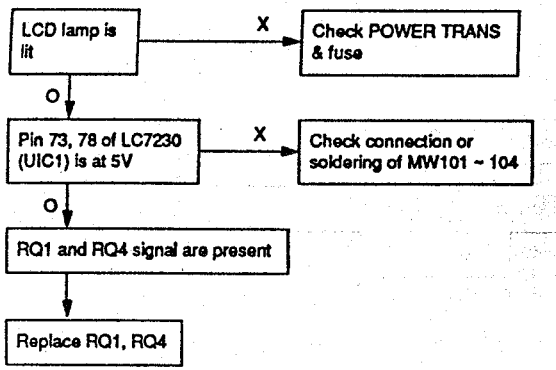
● **EXPLODED VIEW (MAIN)**



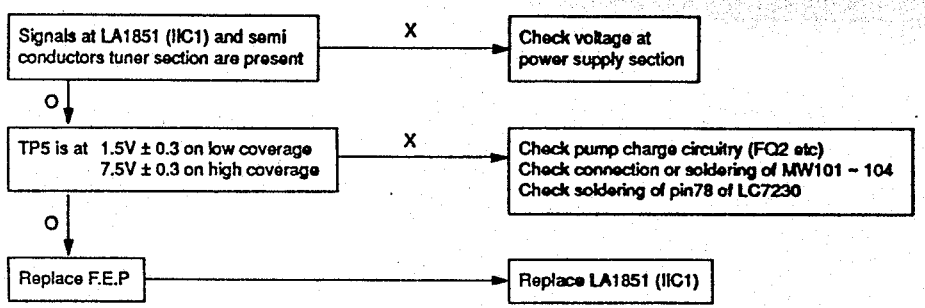
■ TROUBLE SHOOTING

1. MAIN

1) POWER ON/OFF PROBLEM

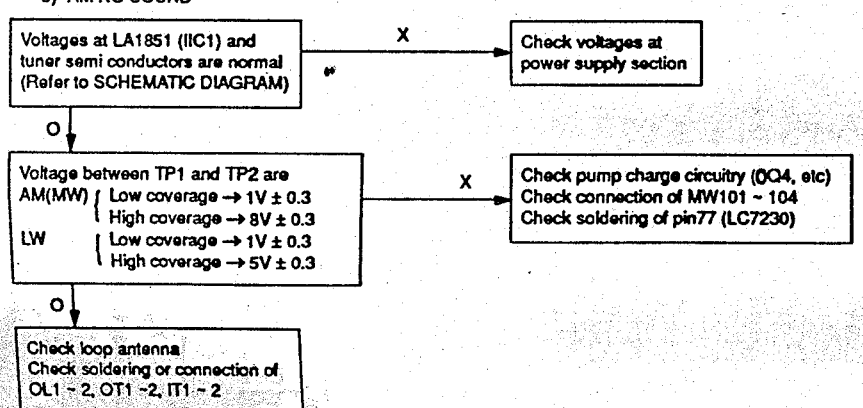


2) FM NO SOUND

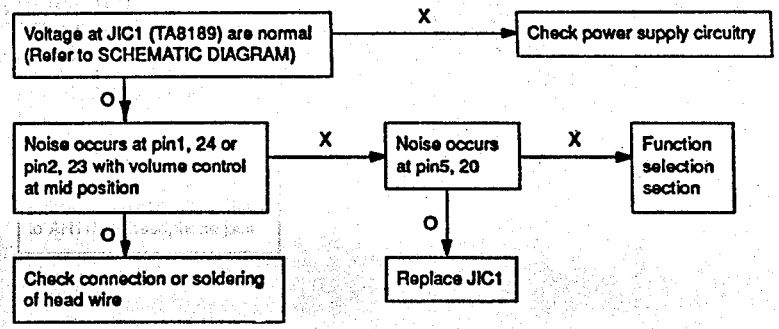

Signals at LA1851 (IIC1) and semi conductors tuner section are present
X
Check voltage at power supply section
O
TP5 is at 1.5V ± 0.3 on low coverage
7.5V ± 0.3 on high coverage
X
Check pump charge circuitry (FQ2 etc)
Check connection or soldering of MW101 ~ 104
Check soldering of pin78 of LC7230
O
Replace F.E.P
Replace LA1851 (IIC1)

* F.E.P : FRONT END PACK

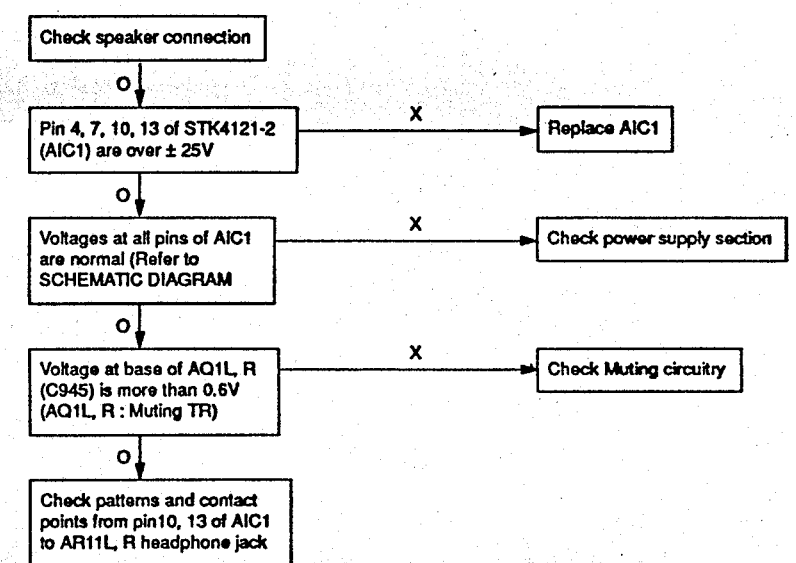
3) AM NO SOUND


Voltages at LA1851 (IIC1) and tuner semi conductors are normal (Refer to SCHEMATIC DIAGRAM)
X
Check voltages at power supply section
O
Voltage between TP1 and TP2 are
AM(MW) Low coverage → 1V ± 0.3
High coverage → 8V ± 0.3
LW Low coverage → 1V ± 0.3
High coverage → 5V ± 0.3
X
Check pump charge circuitry (0Q4, etc)
Check connection of MW101 ~ 104
Check soldering of pin77 (LC7230)
O
Check loop antenna
Check soldering or connection of OL1 ~ 2, OT1 ~2, IT1 ~ 2

4) TAPE NOT PLAYING



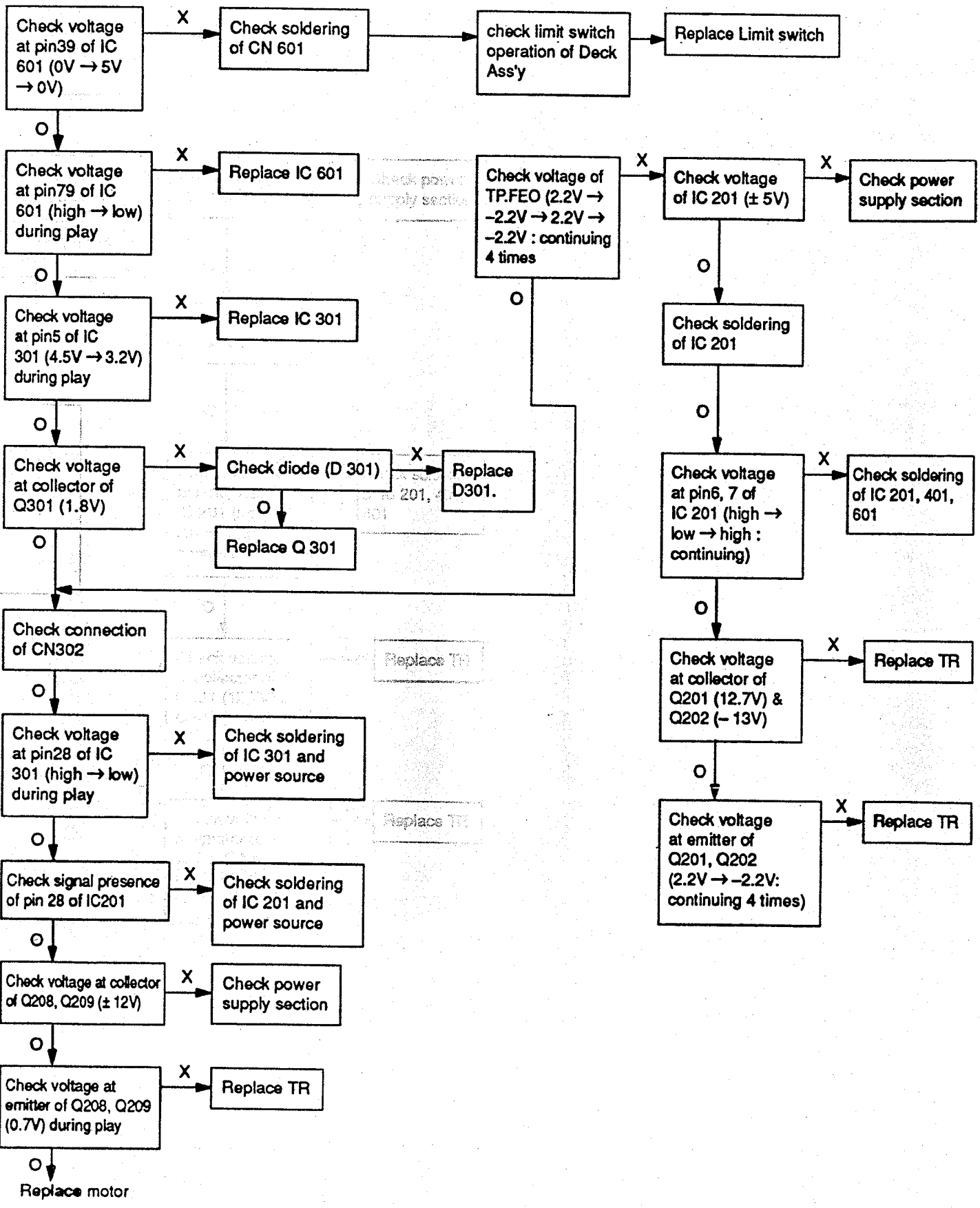
5) AUDIO OUTPUT PROBLEM


Check speaker connection
O
Pin 4, 7, 10, 13 of STK4121-2 (AIC1) are over ± 25V
X
Replace AIC1
O
Voltages at all pins of AIC1 are normal (Refer to SCHEMATIC DIAGRAM
X
Check power supply section
O
Voltage at base of AQ1L, R (C945) is more than 0.6V (AQ1L, R : Muting TR)
X
Check Muting circuitry
O
Check patterns and contact points from pin10, 13 of AIC1 to AR11L, R headphone jack

2. CD

* Be sure not to use a warped or dirt-build up disc in troubleshooting.

1) DISC DOESN'T ROTATE


Check voltage at pin39 of IC 601 (0V → 5V → 0V)
X
Check soldering of CN 601
check limit switch operation of Deck Ass'y
Replace Limit switch
O
Check voltage at pin79 of IC 601 (high → low) during play
X
Replace IC 601
O
Check voltage at pin5 of IC 301 (4.5V → 3.2V) during play
X
Replace IC 301
O
Check voltage at collector of Q301 (1.8V)
X
Check diode (D 301)
X
Replace D301.
O
Replace Q 301
O
Check connection of CN302
O
Check voltage at pin28 of IC 301 (high → low) during play
X
Check soldering of IC 301 and power source
O
Check signal presence of pin 28 of IC201
X
Check soldering of IC 201 and power source
O
Check voltage at collector of Q208, Q209 (± 12V)
X
Check power supply section
O
Check voltage at emitter of Q208, Q209 (0.7V) during play
X
Replace TR
O
Replace motor
Check voltage of TP.FEO (2.2V → −2.2V → 2.2V → −2.2V : continuing 4 times
X
Check voltage of IC 201 (± 5V)
X
Check power supply section
O
Check soldering of IC 201
O
Check voltage at pin6, 7 of IC 201 (high → low → high : continuing)
X
Check soldering of IC 201, 401, 601
O
Check voltage at collector of Q201 (12.7V) & Q202 (− 13V)
X
Replace TR
O
Check voltage at emitter of Q201, Q202 (2.2V → −2.2V: continuing 4 times)
X
Replace TR